

U.S. Serial No. 09/581,772

**IN THE CLAIMS:**

1. (Currently amended) A microparticle comprising: a polymer selected from the group consisting of a poly( $\alpha$ -hydroxy acid), a polyhydroxy butyric acid, a polycaprolactone, a polyorthoester, a polyanhydride, and a polycyanoacrylate; a detergent selected from a cationic detergent and an anionic detergent; and an antigen comprising a polynucleotide adsorbed on the surface of said microparticle,

wherein said microparticle is formed by a process that comprises: forming a microparticle comprising said polymer and said detergent, said microparticle being formed in the presence of said detergent; and exposing said microparticle to said antigen.

2. (Cancelled)

3. (Previously Presented) The microparticle of claim 1, further comprising an additional biologically active macromolecule encapsulated within said microparticle, wherein the additional biologically active macromolecule is selected from a polypeptide, a polynucleotide, a polynucleoside, an antigen, a hormone, an enzyme, and an immunological adjuvant.

4. (Previously Presented) The microparticle of claim 1, wherein the poly( $\alpha$ -hydroxy acid) is selected from poly(L-lactide), poly(D,L-lactide) and poly(D,L-lactide-co-glycolide).

5. (Previously Presented) The microparticle of claim 1, wherein the polymer is poly(D,L-lactide-co-glycolide).

6-8. (Cancelled)

9. (Currently Amended) The microparticle of claim 1, wherein said polynucleotide encodes a polypeptide the antigen is selected from an HIV gp120 antigen, an HIV gp160

U.S. Serial No. 09/581,772

antigen polypeptide, an HIV p24gag-antigen polypeptide, an HIV p55gag-antigen polypeptide, and an Influenza A hemagglutinin-antigen polypeptide.

10. (Currently amended) The microparticle of claim 1, wherein the antigen comprises a said polynucleotide which encodes an HIV gp120-antigen polypeptide.

11. (Previously Presented) The microparticle of claim 3, wherein the additional biologically active macromolecule is an immunological adjuvant.

12. (Previously Presented) The microparticle of claim 11, wherein the immunological adjuvant is an aluminum salt.

13. (Currently amended) A microparticle composition comprising a microparticle of any of claims 1-7 and 9-12 1, 3-5 and 9-12 and a pharmaceutically acceptable excipient.

14. (Currently amended) A microparticle composition comprising a microparticle according to any of claims 1, 2, 4-7, 9 and 10 1, 4, 5, 9 and 10, a pharmaceutically acceptable excipient, and an immunological adjuvant.

15. (Previously Presented) A microparticle composition of claim 14, wherein the immunological adjuvant is selected from CpG oligonucleotides, E. coli heat-labile toxin-K63 (LTK63), E. coli heat-labile toxin-R72 (LTR72), monophosphoryl lipid A (MPL), and an aluminum salt.

16. (Previously Presented) A microparticle composition of claim 15, wherein the aluminum salt is aluminum phosphate.

17-42. (Canceled).

U.S. Serial No. 09/581,772

43. (Currently amended) A microparticle comprising: a biodegradable polymer; a detergent selected from a cationic detergent and an anionic detergent; and an antigen comprising a polynucleotide adsorbed on the surface of said microparticle,

wherein said microparticle is formed by a process that comprises: forming a microparticle comprising said polymer and said detergent, said microparticle being formed in the presence of said detergent; and exposing said microparticle to said antigen.

44. (Cancelled)

45. (Currently amended) The microparticle of claim 44, further comprising an additional biologically active macromolecule encapsulated within said microparticle, wherein the additional biologically active macromolecule is selected from a polypeptide, a polynucleotide, a polynucleoside, an antigen, a hormone, an enzyme, and an immunological adjuvant.

46. (Currently amended) A microparticle composition comprising a microparticle of any of claims 43 and 45, and a pharmaceutically acceptable excipient.

47. (Currently amended) A microparticle composition comprising a microparticle according to any of claims 43 and 44, a pharmaceutically acceptable excipient, and an immunological adjuvant.

48-55. (Canceled)

56. (Currently amended) The microparticle of claim 54, any of claims 1, 3-5 and 9-12, wherein the antigen comprises said polynucleotide is a plasmid DNA molecule.

57. (Currently amended) The microparticle of claim 54, any of claims 1, 3-5, 11 and 12, wherein the polynucleotide encodes a polypeptide selected from HIV polypeptides, hepatitis B virus polypeptides, hepatitis C virus polypeptides, *Haemophilus influenza*

U.S. Serial No. 09/581,772

type B polypeptides, pertussis polypeptides, diphtheria polypeptides, tetanus polypeptides, and influenza A virus polypeptides.

58. (Currently amended) The microparticle of ~~claim 6~~ claim 1, wherein the cationic detergent is hexadecyltrimethylammonium bromide.

59-68. (Cancelled).

69. (Currently amended) The microparticle of any of claims ~~1, 2, 3, 4, 5, 6, 7 and 11~~ 1, 3-5, 9-12 and 58, wherein ~~said antigen is not entrapped within said microparticle does not comprise an entrapped antigen~~.

70. (Currently amended) The microparticle of any of claims ~~1, 2, 3, 4, 5, 6, 7 and 11~~ 1, 3-5, 9-12 and 58, wherein said microparticle is formed in a double emulsion process.

71. (Currently amended) The microparticle of any of claims ~~1, 2, 3, 4, 5, 6, 7 and 11~~ 1, 3-5, 11, 12 and 58, wherein the polynucleotide encodes a polypeptide said antigen is derived from a pathogenic organism.

72. (Previously Presented) The microparticle of claim 71, wherein said pathogenic organism is a bacterium.

73. (Previously Presented) The microparticle of claim 71, wherein said pathogenic organism is a virus.

74-76. (Cancelled)

77. (Currently amended) The microparticle of any of claims ~~1, 2, 3, 4, 5, 6, 7 and 11~~ 1, 3-5, 9-12 and 58, wherein the microparticle has a diameter between 500 nanometers and 10 microns.

U.S. Serial No. 09/581,772

78. (Currently amended) The microparticle of any of claims 2, 3, 6, 7, and 11 3, 9-12 and 58, wherein the polymer is poly(D,L-lactide-co-glycolide).

79. (Previously Presented) The microparticle composition of claim 13, wherein said microparticle composition is an injectable composition.

80. (Previously Presented) The microparticle composition of claim 14, wherein said microparticle composition is an injectable composition.

81. (Currently Amended) A microparticle composition comprising a microparticle of claim 52-claim 56 and a pharmaceutically acceptable excipient.

82. (Previously Presented) The microparticle composition of claim 81, wherein said microparticle composition is an injectable composition.

83. (Currently Amended) A microparticle composition comprising a microparticle of claim 53-claim 77 and a pharmaceutically acceptable excipient.

84. (Previously Presented) The microparticle composition of claim 83, wherein said microparticle composition is an injectable composition.

85. (Currently Amended) A microparticle composition comprising a microparticle of claim 54-claim 78 and a pharmaceutically acceptable excipient.

86. (Previously Presented) The microparticle composition of claim 85, wherein said microparticle composition is an injectable composition.

87. (Previously Presented) A microparticle composition comprising a microparticle of claim 57 and a pharmaceutically acceptable excipient.

U.S. Serial No. 09/581,772

88. (Previously Presented) The microparticle composition of claim 87, wherein said microparticle composition is an injectable composition.

89. (Previously Presented) A microparticle composition comprising a microparticle of claim 71 and a pharmaceutically acceptable excipient.

90. (Previously Presented) The microparticle composition of claim 89, wherein said microparticle composition is an injectable composition.

91. (Currently amended) The microparticle of any of claims ~~1, 2, 3, 4, 5, 6, 7 and 11~~  
~~1, 3, 4, 5, 11 and 12~~, wherein said antigen is polynucleotide encodes a polypeptide derived from a tumor antigen.

92. (Previously Presented) A microparticle composition comprising a microparticle of claim 91 and a pharmaceutically acceptable excipient.

93. (Previously Presented) The microparticle composition of claim 92, wherein said microparticle composition is an injectable composition.

94. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 13, and administering said microparticle composition to a vertebrate animal.

95. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 14, and administering said microparticle composition to a vertebrate animal.

96. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 46, and administering said microparticle composition to a vertebrate animal.

U.S. Serial No. 09/581,772

97. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 47, and administering said microparticle composition to a vertebrate animal.
98. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 81, and administering said microparticle composition to a vertebrate animal.
99. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 83, and administering said microparticle composition to a vertebrate animal.
100. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 85, and administering said microparticle composition to a vertebrate animal.
101. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 87, and administering said microparticle composition to a vertebrate animal.
102. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 89, and administering said microparticle composition to a vertebrate animal.
103. (Previously Presented) A method of raising an immune response, comprising: providing the microparticle composition of claim 92, and administering said microparticle composition to a vertebrate animal.
104. (New) The microparticle composition of claim 46, wherein said microparticle composition is an injectable composition.

U.S. Serial No. 09/581,772

105. (New) The microparticle composition of claim 47, wherein said microparticle composition is an injectable composition.